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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,837	02/08/2006	Rolf Theo Anton Apetz	DE030288	7344

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EXAMINER	
SONG, HOON K	

ART UNIT	PAPER NUMBER
2882	

MAIL DATE	DELIVERY MODE
03/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/567,837	APETZ ET AL.	
	Examiner	Art Unit	
	HOON SONG	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) *1-11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 29-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishimura et al. (US 2002/0094063A1).

Regarding claim 29, Nishimura teaches device, comprising:

a radiation source 3 and

a filter 6 for retaining a substance originating from the radiation source, the filter including a thin layer that is transparent to ultraviolet and/or X-ray radiation, and

a support structure for the thin layer, wherein the support structure is preponderantly molybdenum, zirconium carbide, zirconium dioxide, silicon carbide, silicon nitride, boron nitride, or a combination thereof (paragraphs 122, 126 and 127).

Regarding claim 30, Nishimura teaches the thin layer is connected to the support structure, or in that the thin layer and the support structure can be manufactured as an integral whole (figure 10).

Regarding claim 31, Nishimura teaches a material used for the thin layer and the support structure has a melting point of at least 1300 °C (paragraphs 122, 126 and 127).

Regarding claim 32, Nishimura teaches the thin layer is preponderantly zirconium, niobium, molybdenum, silicon, zirconium carbide (ZrC), zirconium dioxide, silicon carbide

(SIC), silicon nitride (Si3N4), boron nitride (BN), or a combination thereof (paragraphs 122, 126 and 127).

Regarding claim 33, Nishimura teaches the thin layer has a layer thickness of approximately 100 nm (paragraphs 122, 126 and 127).

Regarding claim 34, Nishimura teaches the support structure has a thickness of approximately 1 μm to 1 mm (paragraphs 122, 126 and 127).

Regarding claim 38, Nishimura teaches the filter seals off the radiation source in the form of a window (paragraphs 122, 126 and 127).

Regarding claim 39, Nishimura teaches the radiation source and the filter are means for EUV lithography (paragraphs 122, 126 and 127).

Regarding claim 40, Nishimura teaches a device, comprising:

a radiation source; and

a filter for retaining a substance originating from the radiation source, the filter consisting of a single thin layer that is transparent to ultraviolet and/or X-ray radiation, wherein the thin layer is preponderantly zirconium, niobium, silicon, molybdenum, zirconium carbide (ZrC), zirconium dioxide, silicon carbide (SIC), silicon nitride (SiBN4), boron nitride (BN), or a combination thereof (paragraphs 122, 126 and 127).

Regarding claim 41, Nishimura teaches a support structure, wherein the thin layer is connected to the support structure, or in that the thin layer and the support structure are manufactured as an integral whole (paragraphs 122, 126 and 127).

Regarding claim 42, Nishimura teaches a material used for the thin layer and the support structure has a melting point of at least 1300 °C (paragraphs 122, 126 and 127).

Regarding claim 43, Nishimura teaches the support structure is preponderantly zirconium, niobium, molybdenum, silicon, zirconium carbide (ZrC), zirconium dioxide, silicon carbide (SIC), silicon nitride (Si3N4), boron nitride (BN), or a combination thereof (paragraphs 122, 126 and 127).

Regarding claim 44, Nishimura teaches the thin layer has a layer thickness of approximately 100 nm (paragraphs 122, 126 and 127).

Regarding claim 45, Nishimura teaches the support structure has a thickness of approximately 1 μm to 1 mm (paragraphs 122, 126 and 127).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (US 2002/0094063A1) in view of Hayashida et al. (US 5444753).

Regarding claim 12, Nishimura teaches a device comprising:

A radiation source (3); and

A filter 6 for retaining a substance originating from the radiation source, the filter including a thin layer that is transparent to extreme ultraviolet and/or soft x-ray radiation.

However Nishimura fails to teach the thin layer is preponderantly zirconium, niobium, molybdenum or zirconium carbide, zirconium dioxide, silicon carbide, boron nitride or a combination thereof (paragraphs 122, 126 and 127).

Hayashida teaches that boron nitride, silicon, silicon nitride, silicon carbide, etc., are mainly known as inorganic materials of such an x-ray transmission membrane (column 2 lines 49-56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the transmission filter of Nishimura with the transmission material as taught by Hayashida, since it would provide benefit over the other.

Regarding claim 13, Nishimura teaches a thin layer is connected to a support structure 67 (paragraphs 122, 126 and 127).

Regarding claim 14, Nishimura teaches the thin layer and the support structure is made of a material having at least 1300 degrees melting point (paragraphs 122, 126 and 127).

Regarding claim 15, Nishimura teaches at least the thin layer is manufactured (paragraphs 122, 126 and 127).

Regarding claim 16, Nishimura teaches at least the thin layer comprising silicon (paragraphs 122, 126 and 127).

Regarding claim 17, Nishimura teaches the thin layer has layer thickness of 100 nm (paragraphs 122, 126 and 127).

Regarding claim 18, Nishimura teaches the support structure has a thickness of 1 micron to 1 mm (paragraphs 122, 126 and 127).

Regarding claim 19, Nishimura teaches the support structure is constructed in the form of strips (figure 12).

Regarding claim 20, Nishimura teaches the support structure is obtained by means of erosion, laser processing or photochemical etching (figure 12).

Regarding claim 21, Nishimura teaches the radiation source and the filter are means for EUV lithography (paragraphs 122, 126 and 127).

Regarding claim 22, Nishimura teaches the filter is operated between 900 degrees to 1300 degrees (paragraphs 122, 126 and 127).

Regarding claim 23-24, note: the temperature for the filter is adjustable is functional/intended use and no patentable weight (paragraphs 122, 126 and 127).

Regarding claims 25 and 37, Nishimura teaches a foil trap arranged between the radiation source and the filter (figure 10)

Regarding claim 26, Nishimura teaches the filter seals off the radiation source in the form of a window (figure 10)

Regarding claim 27, "the substance reaches a pressure" is functional and no patentable weight (paragraphs 122, 126 and 127).

Regarding claim 28, Nishimura teaches the strips are in the form of a grid-type or honeycomb-type woven structure.

Response to Arguments

Applicant's arguments filed 1/12/2009 have been fully considered but they are not persuasive.

The applicant argues that Nishimura fails to teach a filter being preponderantly molybdenum, zirconium carbide, zirconium dioxide, silicon carbide, silicon nitride, boron nitride or combination thereof. The examiner disagrees.

Nishimura teaches a silicon nitride film 68 formed on one while surface of the base plate 67 and covers the opening 66 (paragraph 122). Thus Nishimura teaches the claimed material and the applicant's argument is not persuasive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOON SONG whose telephone number is (571)272-2494. The examiner can normally be reached on 10:30 AM - 7 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hoon Song/
Primary Examiner, Art Unit 2882